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## Welcome to

### Webinar #10: Trading Market Fundamentals

Moderator: **Sonia Hamel**, *New America Foundation*

Speakers: **Olivia Hartridge**, *Morgan Stanley*

**Gia Schneider**, *Credit Suisse*

**Ian Carter**, *International Emissions Trading Assoc.*

**Tuesday, February 26, 2008**

11:30 am - 1:00 pm PST

12:30 pm - 2:00 pm MST

1:30 pm - 3:00 pm CST

2:30 pm - 4:00 pm EST

# **World Resources Institute Webinar Series**

**Olivia Hartridge, Morgan Stanley**

**Carbon markets: why and how?**

**26 February 2008**

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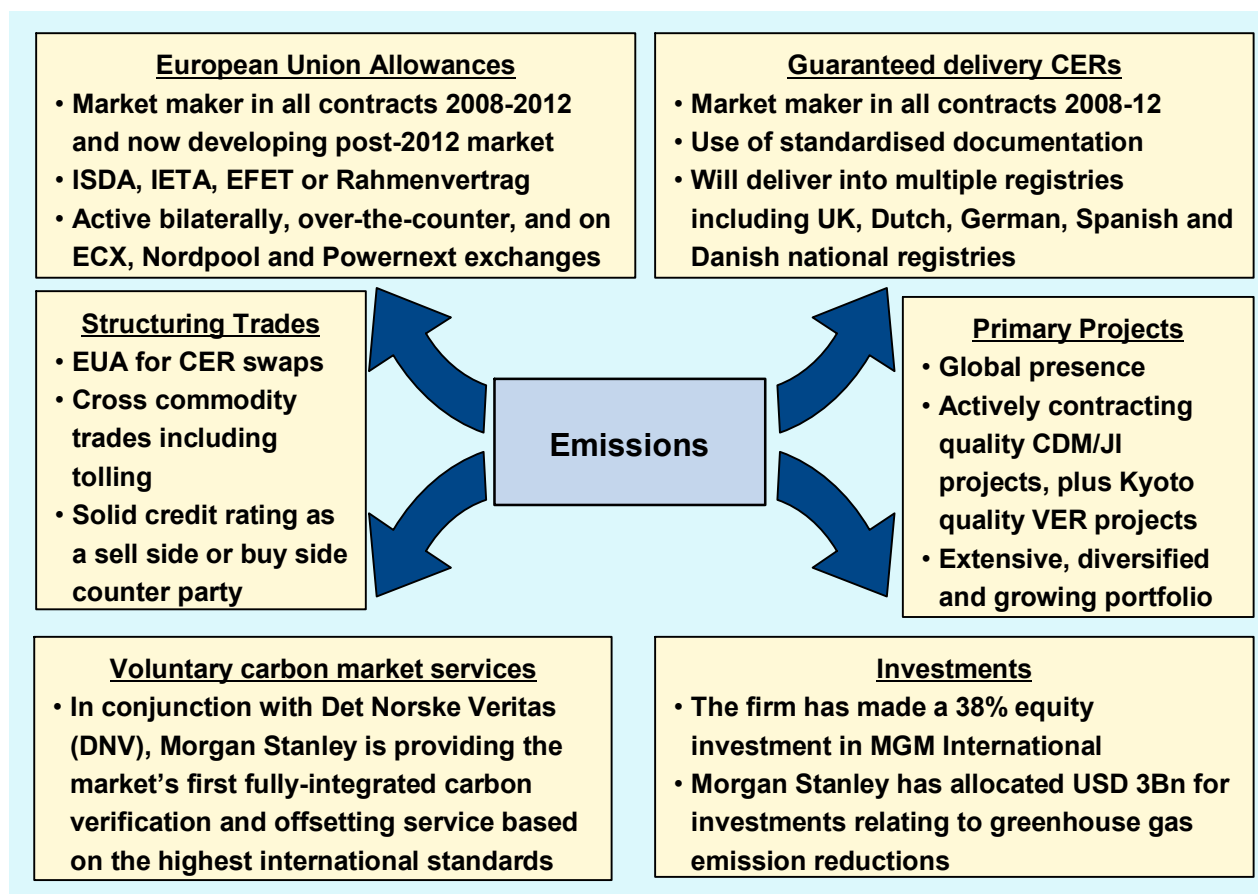
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Section 1

# The Morgan Stanley Team

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## Morgan Stanley's Carbon Expertise



## Contact Information

The carbon trading desk at Morgan Stanley has extensive experience of both the speculative trading and project investment sides of the carbon market, and of the regulations which underlie the market. The members of the Firm's carbon trading team, through the diversity of their career experiences, have been involved in designing, implementing and trading in the carbon market from its very beginnings.

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Section 2

## The Big Picture and Trading the Market

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## The EU emissions trading scheme

- The EU ETS has a classic cap and trade design; closely modelled on Acid Rain Program
- So serves as a broad blueprint for other schemes as they develop across the world
- Assessing the scheme on its design and its objectives, it has been a success
- Too much focus on 2005-7 over-allocation
  - Always described as being a short learning-by-doing phase
  - Over-allocation swiftly corrected for the 2008-12 phase
- Why did it happen?
  - Scheme was implemented at a record pace: not enough time to collect third-party verified installation-level data as a basis for setting the 2005-7 cap
- More broadly, many of the lessons learned need to be seen in this context: capable of being resolved through small streamlining changes

## Successful design features of the EU ETS

- Source-based system: addresses emissions at the smokestack where best able to be reduced
- Monitoring and reporting standards are high and represent years of improvement and consultation
- Electronic registries system for holding allowances is modern, fast and secure
- Solid and effective compliance regime; ensures that the emissions cap is upheld through time through fixed high penalties and a 1:1 make-good provision
- The 2008-2012 emissions cap will require substantial emission reduction action
- Free-market approach: no market intervention/price controls which discourage investment and can create volatility
- Access to emission reductions generated outside of the EU ETS:
  - Quick link to the international carbon market (project credits)
  - Creates a safety valve which simultaneously encourages investment

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## The EU ETS market

- The over-the-counter (OTC) market is most liquid (taking into ECX exchange-for-physicals (EFPs))
- OTC trading is currently for forward delivery on 1 December of each year 2008-12, the spot market is awaiting allocation of allowances
- 1 December 2008 is the most liquid contract, trading 3 to 4 million tonnes a day on average
- European Carbon Exchange (ECX) is the most liquid exchange compared to Nordpool and EEX exchanges.
- The OTC market is complicated by the fact that three master agreements (IETA, ISDA, EFET) are used for the same underlying commodity due to individual firm preferences
- Some options trading does occur but not yet very liquid
- Options market may grow in time in terms of liquidity given the number of banks and hedge funds that have entered the EU ETS market
- Out of the compliance participants, some of the generators are the most sophisticated, quickest movers in the EU ETS market
- Generators continuously evaluate their power production portfolio (gas coal fuel oil) against power and carbon prices

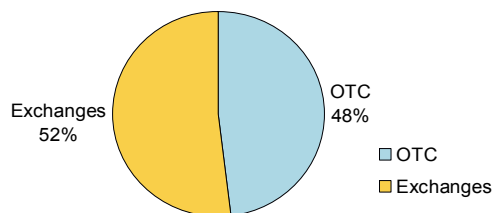
Trading the Market

# EU ETS – Split between markets

## Market Shares – “Over the counter” and Exchange-traded markets

### OTC Vs Exchange Traded

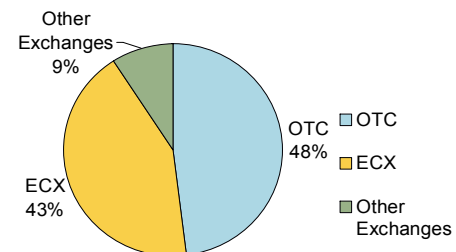
As of 31 Jan 2007



Source LEBA

### OTC, ECX and Other Exchanges

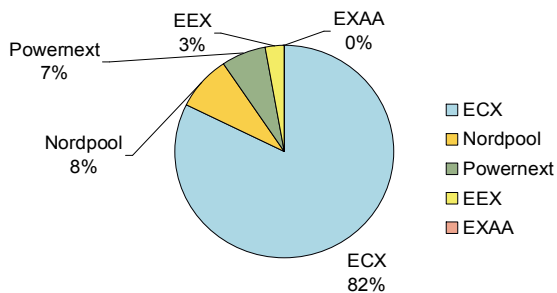
As of 31 Jan 2007



Source LEBA

### All Exchanges

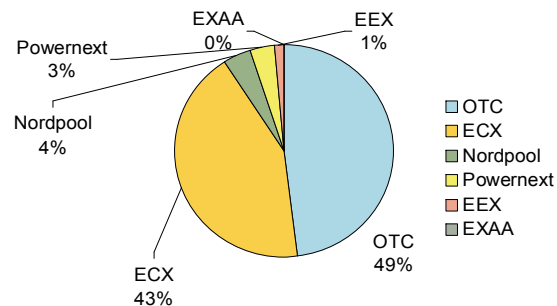
As of 31 Jan 2007



Source LEBA

### Total Market Volume

As of 31 Jan 2007



Source LEBA

Section 3

## Some Lessons Learned

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## Data Verification

- Data quality is paramount to a successful ETS
- EU ETS monitoring and reporting standards are high
- But the EU ETS legislation did not provide the same underpinning for verification standards, and equally the accreditation standards for approving verifiers
- Therefore verification and accreditation standards are not harmonised across the EU ETS
- The European Commission has proposed to address this through its post-2012 review of the EU ETS
- Also, there is no harmonised way of penalising the non-submission of emissions data. Regulators need to ensure this doesn't become a legal loophole (i.e. the penalty for each missing allowance still functions.)
- **Lesson learned:** treat monitoring, reporting and verification as a coherent whole; so harmonise verification and accreditation across the EU to a high standard

## Data release

- Generally 4 principles for releasing market sensitive information or data:
  - the information/data is correct
  - it is summarised, e.g. using headline figures, in a neutral and easily understandable way
  - the date and time for the release is announced at least a few days in advance
  - the whole market can access the data simultaneously (e.g. through a web site supported by powerful servers)
- Fulfilling these principles gives the market confidence and sends the signal that the ETS is run professionally
- **Lesson learned:** market sensitive data can no longer be released through surprise political statements/speeches; government officials may need training on market abuse/insider trading rules

## Allocating emissions allowances

- The emissions cap has to be set comfortably below verified historic emissions levels and in line with any other national/international obligations
- Any interacting policy e.g. renewables must also be crystal clear with respect to how the target has been incorporated into the ETS cap and how it is to be achieved
- There needs to be recognition that the carbon market affects prices in other markets, and vice versa. So if the emissions cap is on the verge of being too generous, or not set far enough ahead, multiple market prices can be influenced by rumours and political signals, which generates additional volatility in all these markets
- The distribution of the cap must be clear and incentivise action not delay e.g. no updating of the emissions baseline
- The cap and its distribution must be stable through time: e.g. power plant investments require a 15 to 20 year payback period and carbon pricing is key in assumptions made for debt and equity financing plus commodity hedging of new plants
- **Lesson learned:** trading periods of 3-5 years are not long enough; they need to be at least e.g. 10 years; the methodology for distributing the emissions cap amongst companies needs to be predictable through time

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## Variable market participation

- Even if there is a theoretical financial incentive to participate in an ETS market, experience in both the UK ETS and EU ETS shows that market participants that have allowances to sell don't always enter the market
  - possibly because the company's day-to-day business means that it is not so active in markets in general
  - possibly because current accounting rules do not require the market value of allowances as an asset, and the market value of emissions as a liability, to be shown on the balance sheet
- If these market participants are over-allocated allowances as a form of compensation e.g. because they are more exposed to international competition, the imbalance in the market between active buyers and sellers is further aggravated with price implications e.g. upwards price bias
- **Lesson learned:** instead of compensating certain market participants through allowances, it is better to consider auctioning allowances and then providing compensation through Auction Revenue Rights (as per the New England transmission markets). This ensures full participation in the market and the recognition of the value of allowances on the balance sheet, whilst still allowing policy goals to be attained

Section 4

# Conclusions

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## Conclusions

- The EU ETS has been a success so far and is the major driving force behind the international carbon market
- As a result, investors are actively searching out emission reduction opportunities worldwide
- The EU ETS experience is highly relevant to other regions developing schemes: no region faces issues particularly different from other regions so no need to start re-inventing the wheel and start designing a trading scheme from scratch
- But market participants are currently very wary about the ability of regulators to successfully set the conditions for a liquid and deep market delivering minimum cost reductions
- Regulators need to be diligent about consulting appropriately, not springing surprises, setting out clear and simple rules which deliver environmental integrity, providing short to medium-term certainty, and managing confidential data with the utmost care
- If this is achieved, not only will the market respond more sympathetically to ideas and good intentions, but will also deliver a wealth of emission reductions

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WRI Webinar  
EU ETS Fundamentals

26 February 2008

Gia Schneider  
Credit Suisse

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# Proposed post-2012 design elements

Issue	European Commission proposal
<b>Cap-setting approach</b>	<ul style="list-style-type: none"> <li>– EU-wide cap published in the Directive for the unilateral scenario</li> <li>– A procedure is set out to change the cap in the event of an international agreement causing the EU to move to a 30 % below 1990 emissions target</li> </ul>
<b>Level of the cap</b>	<ul style="list-style-type: none"> <li>– Emissions in 2020 will be 21% below 2005 reported emissions (1.72 Gt in 2020)</li> <li>– The cap will be reduced linearly on an annual basis of 1.74% per year between 2013 and 2020</li> </ul>
<b>Auctioning volume</b>	<ul style="list-style-type: none"> <li>– 100% auctioning for power sector from 2013</li> <li>– Industry will start with 80% free allocation, reducing to zero free allocation by 2020</li> </ul>
<b>Auctioning modalities</b>	<ul style="list-style-type: none"> <li>– Auctioning will be conducted by Member States but harmonised by Regulation.</li> <li>– 90 % of the allocation of permits to be auctioned will be shared among Member States based on relative 2005 emissions, with a 10 % allocated according to GDP per capita (aimed at income redistribution to Member States)</li> <li>– 20% of revenue will be recycled back into domestic mitigation (including CCS), poverty reduction, deforestation (in LDCs) and adaptation</li> </ul>
<b>Expanded coverage</b>	<ul style="list-style-type: none"> <li>– CO<sub>2</sub> from petrochemicals, ammonia and aluminium</li> <li>– N<sub>2</sub>O from nitric acids and PFC from aluminium</li> <li>– Streamlined definition of combustion installation</li> <li>– CCS plants</li> </ul>

# Proposed quantitative restrictions on CDM

Scenario	Under the ETS	Sovereign
Unilateral	Unused Phase II CER/ERU allowance	3% of non-ETS 2005 emissions (around 500 Mt over phase)
Delay	Unused Phase II CER/ERU allowance	3% of non-ETS 2005 emissions (around 500 Mt over phase)
International agreement	Up to 50% of the anticipated extra reduction in the EU ETS cap (EU moving from 20 % to a 30 % emissions reductions target below 1990)	3-8% of non-ETS emissions (around 500 – 1300 Mt over phase)
Transfer rules	Language suggests by operator only at the discretion of national authorities	Government to government transfer is allowed

In March 2007, European Heads of Government agreed to either:

- Reduce GHG emissions by 20% below 1990 levels by 2020 unilaterally, or
- Reduce GHG emissions by 30% below 1990 levels by 2020 in the event of an international agreement

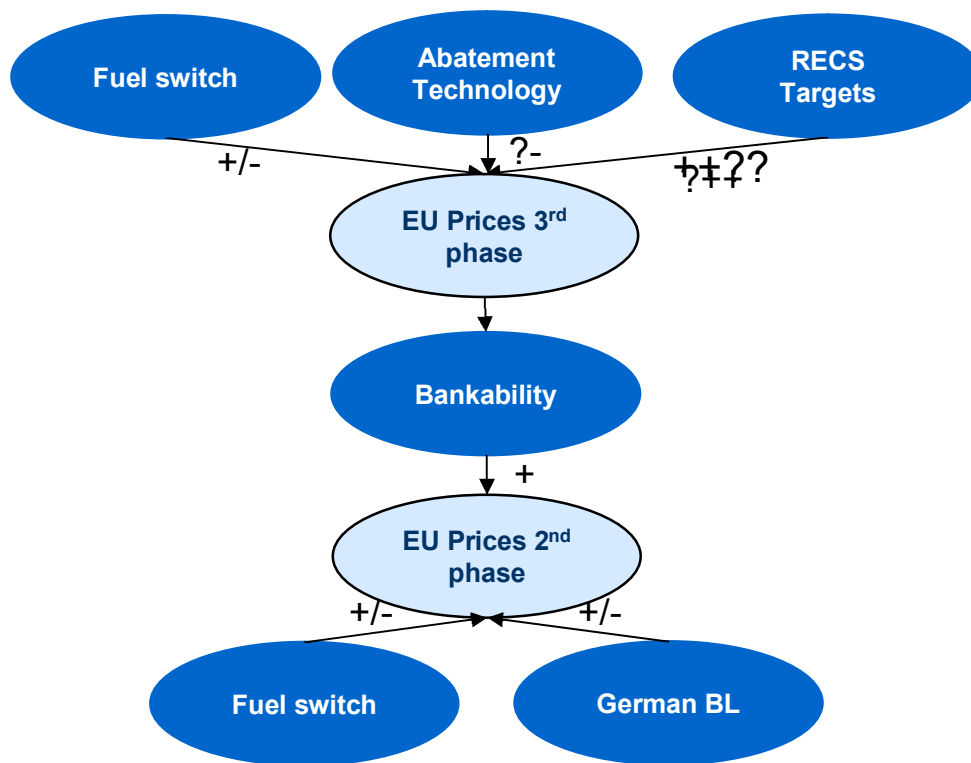
Restrictions on imports are aimed at providing the EU with a bargaining chip with developing countries in the international negotiations on a post 2012 deal

# Price Expectations EUAs

Source	€/t	vintage
▶ Point carbon	36	2013
▶ Idea Carbon	25 - 45	2008
▶ New Carbon Finance	40?	2013
▶ Deutsche Bank	35	2008
▶ Fortis	27 - 48	20??

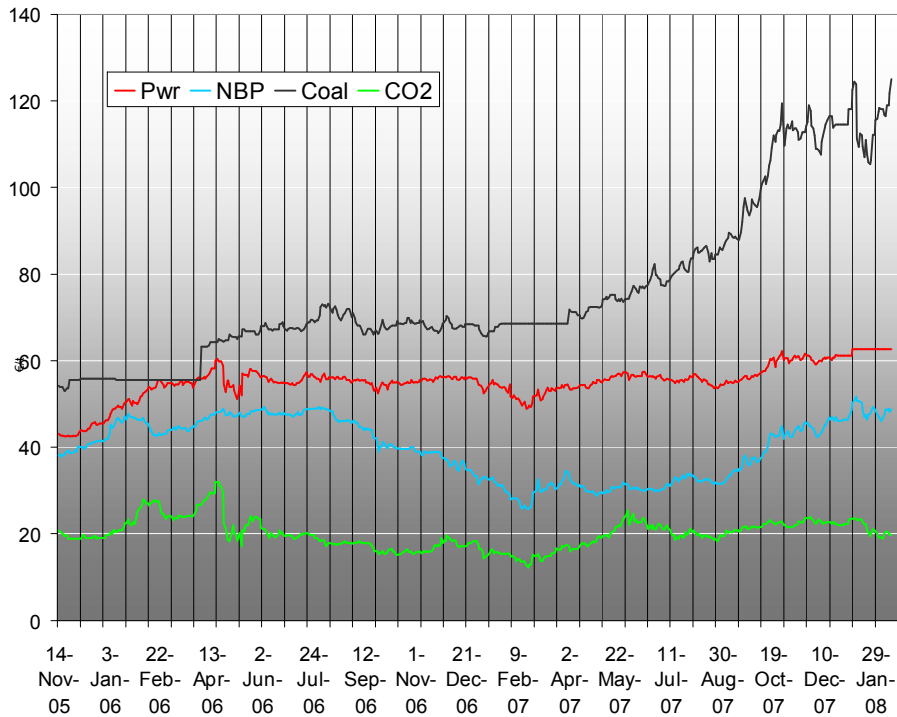
## Major Uncertainties/ Main Drivers:

- ▶ Renewable targets (RECS) are not met;
- ▶ Abatement technologies
- ▶ Impact of potential international trade agreement
- ▶ Fuel Prices
- ▶ German baseload
- ▶ Weather



Long term	Potentially Bullish
Long term	Potentially Bearish
Long term	Likely Bullish
Short - Mid Term	Bearish/Bullish
Med Term	Bearish/Bullish
Short Term	Bearish/Bullish

# Fuel Switching Level and Carbon



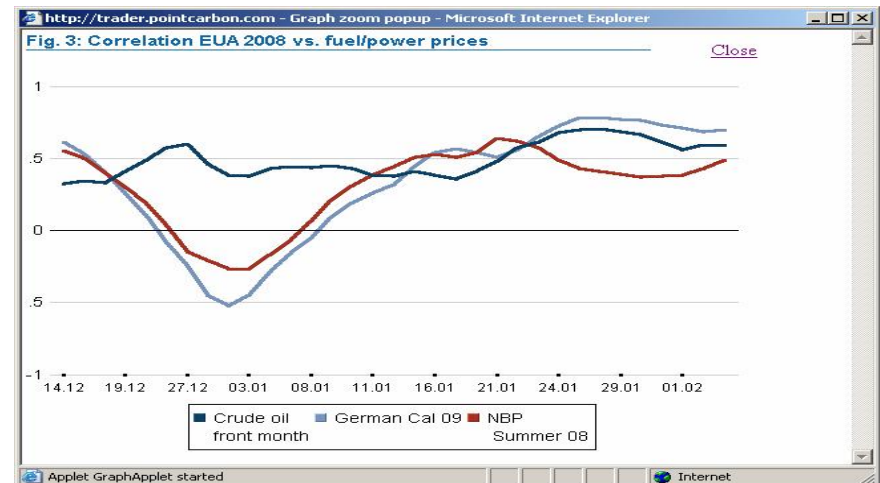
Carbon has come under pressure due to rallying coal prices...

... but power should start to rally too given the low dark and spark spreads

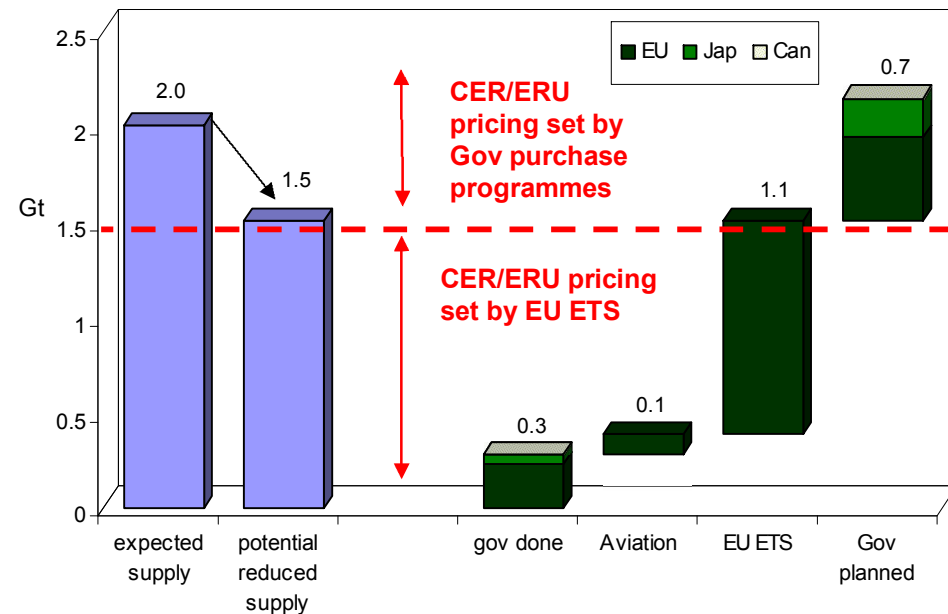
In addition, carbon is still trading below fuel switching levels

Correlations of EUAs vs underlying 30 days are relatively low

It is hard to pick a winner



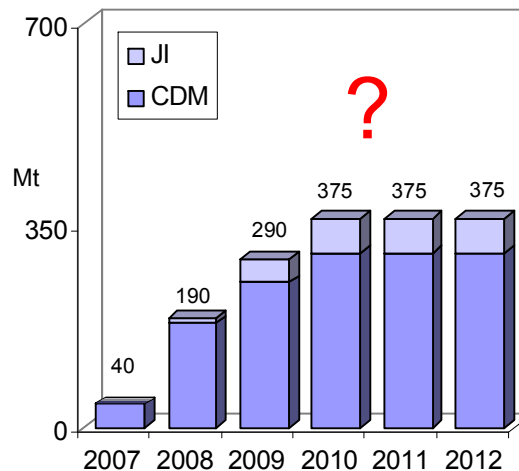
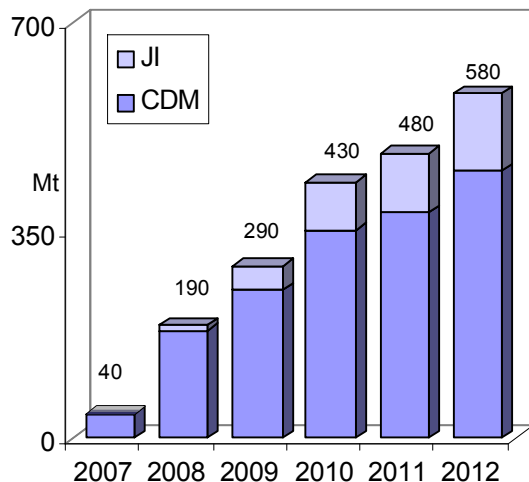
# Long-Term Fundamentals CERs: Supply / Demand should determine price driver of GCERs/GERUs



Prior to EU's announcement the overall market had small potential to be tight, but was likely able to fully cover EU ETS demand

- ▶ Governments (incl Japanese companies) are planning to buy up to 1.0 Gt of CDM to meet their Kyoto targets; of which about 0.3 Gt is purchased already.
- ▶ Aviation has a potential demand for CER/ERUs of about 0.1 Gt
- ▶ EU ETS demand is about 1.1 Gt due to complementarity cap.
- ▶ Hence if the supply of CER/ERUs drops below 2.0 Gt the CDM market will be constrained.
- ▶ Market will even get tighter if government desire to buy more CERs/ERUs due to their remaining "Kyoto gap" (potentially 2.0 Gt) although CDM/JI have to compete against IET (AAU sales).
- ▶ However, selling CER/ERUs to EU ETS is preferred over selling to government due to higher prices.
- ▶ CER/ERU pricing likely only change fundamentally if supply of CDM/JI drops below 1.5 Gt as, below that level, the EU ETS will set price instead of governmental purchase programs.

# What Changed?



## Recent announcements could level off the supply of CDM due to uncertainties about future value post Kyoto:

- ▶ Number of CER/ERUs in PDD (in validation) and pipeline (pre validation) is huge (about 5 Gt)
- ▶ However, late projects will likely require any post 2012 value to materialize in order to make project profitable
- ▶ Current uncertainties about whether a follow-up of the Kyoto treaty will be negotiated, could postpone or cancel investments in new projects

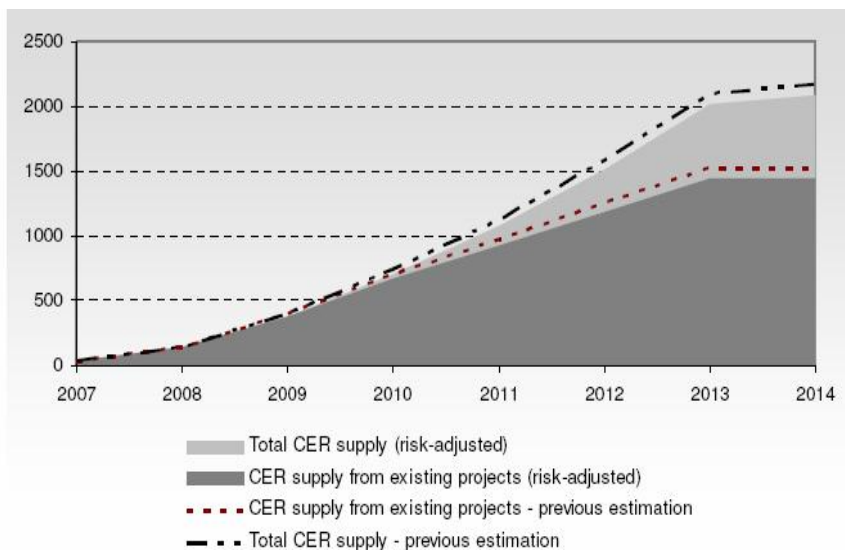
## Recent announcements could increase the demand for CDM/JI in the first phase:

- ▶ EU ETS announced that supplementarity can be carried over to 3rd EU ETS trading phase
- ▶ Hence it is likely that most of the supplementarity cap of 1.4 Gt will be utilized in phase 2
- ▶ However, aviation will probably join the EU ETS a year later and their emission targets will be less stringent
- ▶ Governments have more time to cover their short due to true up period

# Supply of CDM/JI is key for pricing

Total CDM/JI supply 2008-2012 (including 2013)  
according to different sources:

	08-12	08-13
▶ Point carbon	2.4	3.2
▶ Idea Carbon	2.0	2.5*
▶ New Carbon Finance	2.0	2.5*
▶ Soc Gen	2.1	2.5*



Source: New Carbon Finance

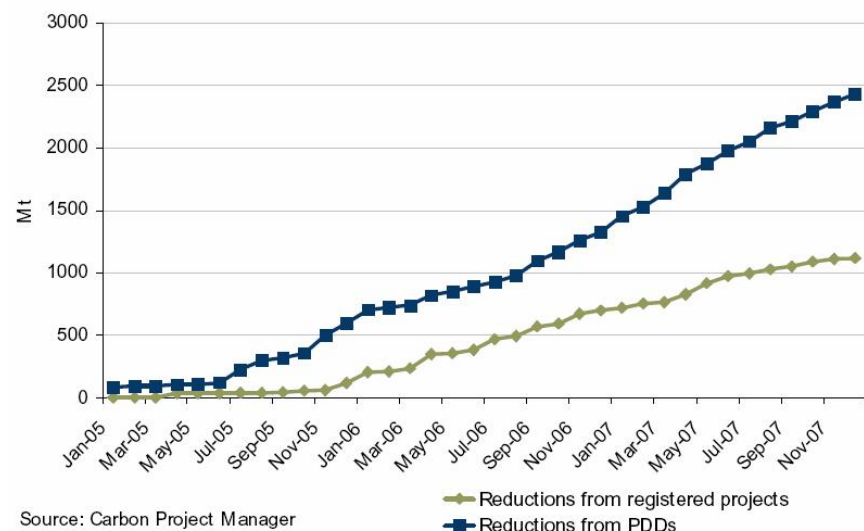
A large number of parties appear to question the high prediction of inflow of CERs/ERUs

- ▶ They anticipate severe time lags due to constraints in validators/ verifiers
  - DOEs already face difficulties in processing current inflow whereas rate of CERs issued per quarter will have to increase almost fivefold to meet the 2.0Gt supply
- ▶ UN appears apply more stringent rules in approval process
- ▶ Projects are producing less than expected (landfills etc)
- ▶ Others reason that a number of projects might be cancelled
  - Long term outlook is very uncertain as EU's reviews on ETS implies that inflow CDM will be limited post 2012 in particular if no international treaty is reached
  - Project developers might have to focus on on going business due to liquidity issues

## Counter arguments to the above

- ▶ Progress in US and elsewhere that drives forward post-2012 framework
- ▶ A lot of projects are already initiated and likelihood they will be cancelled is low due to low inherent costs

# Registration Clearly Lagging Behind..

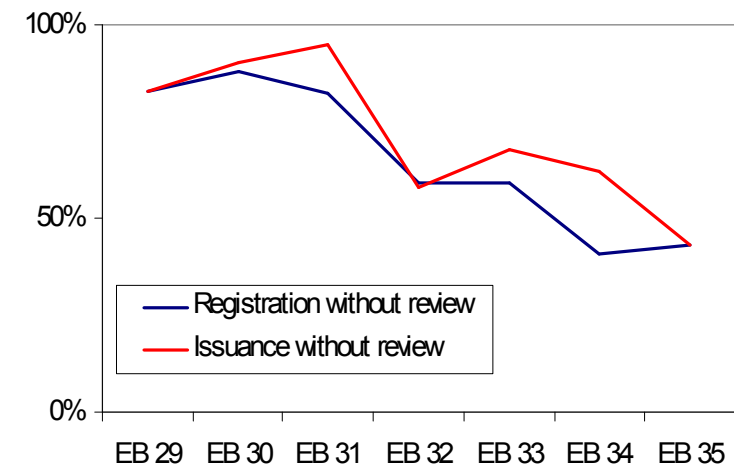


Will UNFCCC/ Validators catch up ...

...or will the UNFCCC be more stringent in approval process, with respect to registration as well as issuance?

...are some methodologies facing issues?

What is the overall effect on supply?



	PDD volumes (Mt)			
	Registered PDDs	Public PDDs	Registered	Registered
<i>year of reduction</i>	2007	2007	2007	2000-2012
Energy efficiency improvement	7.3	28.1	26 %	18 %
Fuel switching	0.7	2.3	29 %	18 %
Fugitive emissions	5.1	17.0	30 %	28 %
Industrial processes	84.1	92.1	91 %	84 %
LULUCF	0.1	0.4	12 %	6 %
Other	0.1	0.1	95 %	87 %
Renewable energy	23.2	44.3	52 %	31 %
Waste	19.5	27.3	71 %	49 %
Total	140.1	211.8	66 %	48 %

# Thank you

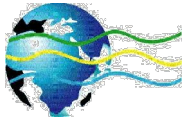
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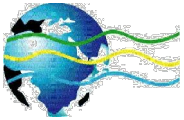
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# Trading Market Fundamentals

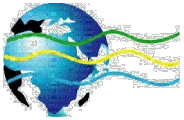
WRI, the Pew Center and New America Foundation Webinar  
February 26, 2008

Ian Carter  
Policy Coordinator, North America  
International Emissions Trading Association



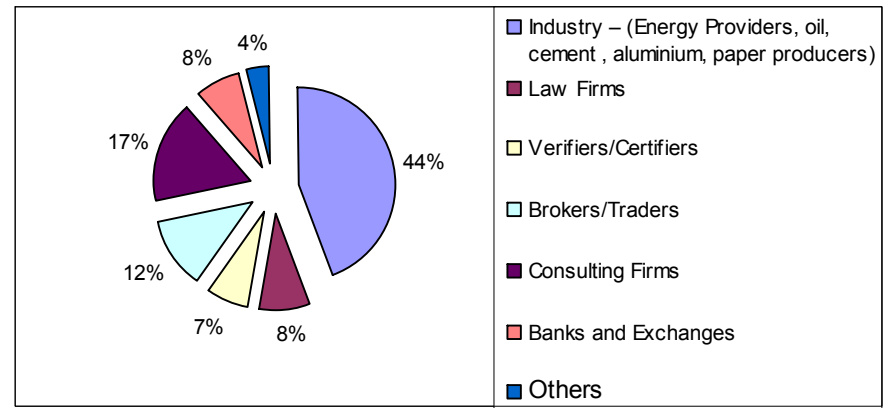
## **IETA is dedicated to:**

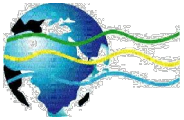
- the objectives of the United Nations Framework Convention on Climate Change and ultimately climate protection;
- the development of an active, global greenhouse gas market, consistent across national boundaries; and
- maintaining societal equity and environmental integrity while establishing these systems



## IETA status

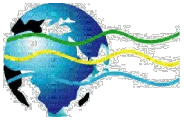
- Membership 184 as of January 2008
  - 44%: emitters
  - 56% project developers, intermediaries, financial institutions, brokers, verifiers, legal firms
- IETA offices
  - Headquarters in Geneva
  - Ottawa
  - Brussels Office – Opened in June 2007
  - Washington DC Office – Open this summer





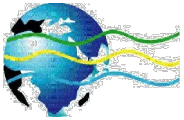
## Key lessons from EU experience

- Lessons learned
  - It can be done
  - Verified baseline data is critical
  - Allocation must ensure sufficient scarcity in a predictable manner
  - Infrastructure must be fully operational
  - Markets will work to correct price



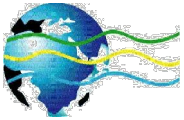
## Key lesson – Possible

- A “downstream” GHG cap and trade program is possible to implement on this scale.
  - Retail electricity prices will increase. The cost of CO<sub>2</sub> allowances will be passed on in wholesale energy markets regardless of allocation method, unless energy market regulation precludes that.
  - Financial intermediaries will take an active and important role in delivering cost certainty – and should be encouraged to do so
- Linkages can be made between national ETSs, and between a national ETS and international GHG offset programs.



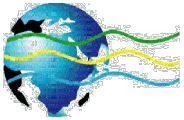
## Key lesson - Data

- Good data is critical for all market participants
  - Verified GHG emissions data is essential for creating an initial GHG emissions cap that can provide some market certainty.
  - This data is market-sensitive – environmental regulators must balance traditional public transparency with a new concern for market disruption
  - Orderly and predictable release is fundamental



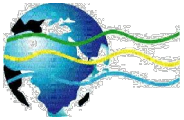
## Key lesson - Allocation

- The decentralized 'National Allocation Plan' process is time-consuming, highly-contentious, complex to implement and has led to inconsistent allocations. Resulting uncertainty has decreased market effectiveness
- Multiple allocation periods coupled with long-term policy uncertainty reduces incentives to invest in new low-carbon technologies.
- The 'Phase' structure used in Europe inevitably led to a 'cliff edge' effect – initially that appeared to a 30+ Euro price, then collapse
  - Banking plays a critical role in avoiding either extreme



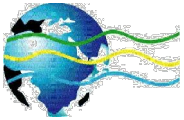
## Key lesson - Infrastructure

- Institutions must provide predictable timelines
- Infrastructure can be rolled out, but that should not introduce uncertainty
  - Example: delay of the ITL (International Transaction Log) needed for CER entry into EU ETS has been disruptive



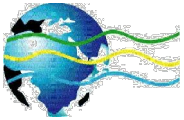
## Key lesson - Markets

- Markets work
  - In a liquid market, high prices will call additional supply
- Avoid the “Goldilocks Imperative”
  - Ex ante market parameters will be more efficient than direct intervention
    - Credible long-term framework for investment
    - Price and volume and delivery risks managed efficiently via market
    - Banking/borrowing flexibility via market



## Elements of a success

- A GHG market program is successful by being wider, deeper, and longer
  - Wider = Credibility: adding sectors and linking capped sectors/jurisdictions, transitional offsets to encourage early abatement, robust additionality
  - Deeper = Efficiency: flexible compliance to extend sectoral coverage, effective enforcement
  - Longer = Certainty: reliable emissions information, banking and borrowing flexibility



## For more information

International Emissions Trading Association

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**CARBON FORUM  
AMERICA 2008**  
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